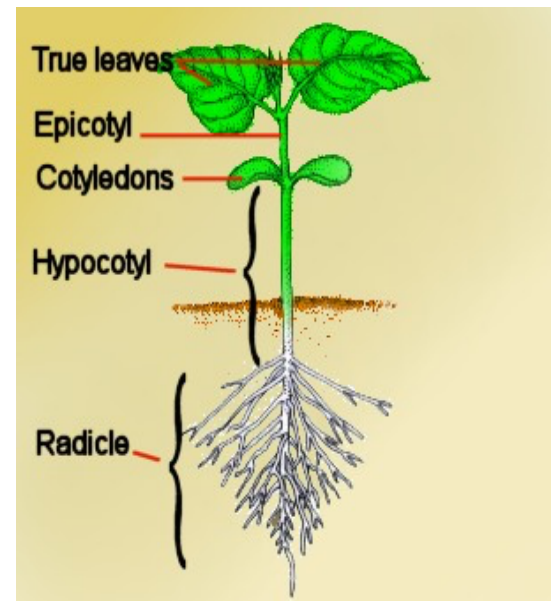


Starting Vegetables from Seed



Place sure bets

Choose plants that are suited for our climate and are within the range of our growing seasons. We live in Seattle, which is considered zone 7 and we have a short season. So growing hot peppers are going to need a lot of extra attention, but plants like broccoli and peas do well in a variety of conditions. Vines need time to grow and set fruit and do well to get a start indoors, but will need gentle handling in their transplant. Some varieties of watermelons for instance, need lots of days of hot weather to set a big fruit and we just don't have it. But that doesn't mean you can't grow watermelon, just choose a short season variety and give it a boost up by starting indoors.



Pea Inoculant

Increase your bean and pea yields! Inoculant is a critical component of growing both peas and beans. Contains Rhizobium bacteria, necessary for converting nitrogen from the air to a form legumes can use. Rhizobia bacteria are found naturally in most garden soils, but they tend to be less active in cool, damp soil (sound familiar Seattleites?). To jump start their effect, you can use what is called an inoculant, a powder containing millions of rhizobia. You can either coat the seeds by shaking them in a plastic bag with the inoculant, or simply mix the powder into the planting soil.

Get the timing down

To calculate when to sow your seeds, use a seed-starting chart and fill in the blanks. Then you will have a planting plan you can follow through the season. Some plants are not particular about frost, in fact will benefit from it! A frost kissed kale is sweeter because it converts starches to sugar. Same goes for root veggies, so in the case of tap root veggies like beets and carrots, harvesting after a frost will give you an incredibly sweet treat.

Gather containers

Any container 2 or 3 inches deep will do. Punch holes for drainage into the bottom of containers and set them into trays. Protect against plant disease by thoroughly cleaning all used containers: Wash them in hot, soapy water, and rinse with a dilute solution of household bleach and water. If you want a less-irritating substitute for the bleach, use distilled white vinegar. You can also use biodegradable pots which can be planted directly into the soil. Pots like peat, coco coir, cow pots and pots made from recycled paper (get your craft on!) are other choices to start your plants.

Pick the right growing medium

You can buy bags of seed-starter mix or you can make your own seedling mix by blending equal parts of perlite, vermiculite, and coconut coir. (Peat is a traditional ingredient, but it is not a sustainable resource and needs to get phased out of our garden soil diet.) Add 1/4 teaspoon of lime to each gallon of mix to neutralize the acidity of the peat. You'll eventually want to repot most of your seedlings into larger containers before setting them into the garden. But lettuce, melons, and cucumbers are finicky about being transplanted and should go directly from the original containers into the garden. When starting these fussier plants, always add two parts well-aged, screened compost to your mix to give them a healthy beginning. One way to avoid damaging fussy plants is to use peat pots (again, not sustainable) or use paper pots, which are easy to make, and can be sown right into the soil. Coconut coir pots are another available, biodegradable pot, but the coconut doesn't break down easily and can inhibit growth.

Sow carefully

Moisten your medium in the containers before sowing the seeds. Next, drop 3 seeds onto the surface of the mix, spacing them as evenly as possible. Cover the seeds to a depth about three times the thickness of the seeds. You will have to pick and choose the strongest seedling to transplant of the three starts and add the other two to the compost for repurposing.

Keep it clean

Lightly sprinkle milled sphagnum moss, a natural fungicide, over everything to protect against damping-off, a fungal disease that rots seeds and seedlings. In the case of seeds that need light to germinate, sprinkle the moss first and then drop the seeds onto the moss. Damping off can be prevented or controlled in several different ways. Sowing seeds in a sterilized growing medium can be effective, although fungal spores may still be introduced to the medium, either on the seeds themselves or after sowing (in water or on the wind). Maintaining drier conditions with better air circulation helps prevent the spread of the disease, although it can also prevent or slow down germination. Spraying or drenching the soil with an anti-fungal treatment like garlic

water (just chunk up a couple cloves of garlic and steep in water for a few days, strain out the solids with an old sock and store in a cool place for up to a month) or chamomile tea will help prevent this disappointing occurrence.

Keep seeds cozy

Cover the flats with plastic wrap, suspended on wooden skewers, or under glass to keep the environment humid and place them near a heat vent or on a heat mat made especially for seed starting. Most seeds germinate well at about 70 degrees F. A great mini greenhouse is a plastic domed cake container with holes poked into the top.

Keep them damp

Mist with a spray bottle or set the trays into water so the mix wicks up the moisture from below.

Lighten up

At the first signs of sprouting, uncover and move the containers to a bright spot—a sunny window, a greenhouse, or beneath a couple of ordinary fluorescent shop lights (4-footers with two 40-watt bulbs), full spectrum lights or purple LED lights. The lights are worthwhile, especially since we live in the North and we enjoy several weeks of liquid sun. Plants need a steady source of high-intensity light. Short days restrict window light, and your seedlings need 12 to 16 hours of light a day. Suspend the lights just 2 inches above the plants and gradually raise them as the seedlings mature. If plants have to stretch or lean toward the light, they can become weak and spindly. To turn the lights on and off at the same time each day, hook them up to an electric timer.

Cool down

Seedlings don't have to stay as warm as germinating seeds. Move them away from radiators and air vents, or off the heating mat, as soon they have germinated.

Give them room

If the seedlings outgrow their containers or crowd one another, repot them into larger containers filled with a mix that includes compost. Extract the seedlings with a narrow fork or flat stick, and handle by their leaves and roots to avoid damaging the fragile stems. (This is why it is best to use paper pots to get your seedlings started...you never have to disturb the roots to transplant). Tuck the seedlings gently into the new pots, and water them to settle the roots. A very diluted fish fertilizer solution will give them a tiny shot of nitrogen which is like a big fat smoothie for your baby plants and will give the new green leaves some encouragement to grow. Be careful that you don't over fertilize at this point however, as you may encourage too much party upstairs, and not enough down below where the roots need to really be concentrating on getting to business.

Pet them

Lightly ruffling seedlings once or twice a day with your hand or a piece of cardboard helps them to grow stocky and strong. Or, set up a small fan to gently, continuously blow on your seedlings. Yeah, this is when you will start talking to your plants. Don't be shy, we all do it.

Toughen them up

About 1 week before the plants are to go outside, start acclimating them to the harsh conditions of the big world. Gardeners call this hardening off. On a warm spring day move the containers to a shaded, protected place, such as a porch, for a few hours. Each day—unless the weather is horrible—gradually increase the plants exposure to sun and breeze. At the end of the week leave them out overnight; then transplant them into the garden.

Keep it clean

Plant Deep

Once you have two or three mature it will be time to plant in the garden. The first baby leaves on your new plant are your planting indicators, don't be afraid to bury the cotyledon, or embryonic leaves, under the soil, you are giving the plant an opportunity to grow good anchors and have a strong beginning. Sometimes your plants will stretch for the light and get leggy, not to worry, same goes for those plants.

Sowing Seeds Outdoors

Seeds that are very large or fast growing are commonly sown directly outdoors where they are to grow.

Weather Watching

The key to direct sowing is to pick the right weather. Study the climate in your area; fill in your Seasonal Benchmarks and find out approximately when you'll need to sow each type of seed. Watch the weather reports and the sky for settled weather conditions, and plant promptly when proper conditions exist

Seasonal Benchmarks

Early Spring: Soil temperature is cool, but past the last hard freeze or heavy frost. May still have light frost.

_____ to _____

Late Spring: Soil has begun to warm, and danger of frost is past.

_____ to _____

Early Summer: Soil temperature and night temperatures have warmed.

_____ to _____

Late Summer: Soil and night temperatures have begun to cool, but still before first frost.

_____ to _____

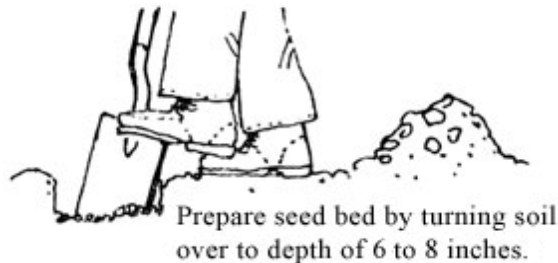
Fall: Soil temperature has cooled and light frosts occur, but before first hard freeze or heavy frost. Ground is not frozen.

_____ to _____

Winter: Soil temperature is very cold or soil is actually frozen. Hard freezes and heavy frosts; soil may freeze.

Seed Bed Preparation

Prepare the seed bed by turning the soil over to a depth of 6-8 inches with a spade or spading fork, breaking up big clumps as you go. Rake the surface as level as you can with a steel-tined garden rake. Shape and smooth your beds so there are no large clods or dips on the planting surface, which should be level. Firm down the surface before planting. **AVOID WALKING ON RAISED BEDS**, as this results in over-compaction of the soil and hampers root development. Don't plow when soil is too wet. If soil does not crumble after squeezing, it is too wet.



Sowing

See your packet for detailed sowing instructions, which vary with each type of seed. Make a furrow to the depth indicated on your seed packet. After sowing, fill in the furrow and firm down. **EXCEPTION:** Some smaller seeds such as lettuce prefer light to germinate and should barely be covered. This is noted on your seed packet.

Care After Sowing

Until seeds have sprouted, keep the seed bed moist, never allowing it to dry out. Water with a fine-spray hose nozzle or watering can which will provide a fine misty spray and not wash away the soil. Water often enough (usually about once a day) so that the soil surface never dries out, but remains constantly moist. Covering the bed with reemay, a light, white, garden fabric helps in warming the soil, conserving moisture, and will protect the delicate seeds from rain washout.

In spring, when weather is favorable, keeping soil moist is easily done; but in summer, the beds need to be shaded or mulched to slow evaporation.

As the seeds germinate, the seedlings may grow too close together. It is important that you thin them, according to the instructions on the seed packet. Do not be softhearted when it comes to thinning . . . too many plants too close together produce the same effect as a serious weed infestation.

Crops vary considerably in their requirements for nutrients and care; consult the google, seed catalogs, or ask at your friendly neighborhood West Seattle Nursery for information concerning fertilizer. Mulching will save time and effort, conserve moisture, keep soil cooler, and keep down weeds.

Sowing Perennials and Annuals Outdoors

Many types of flowers are sown outdoors in fall or spring, when changing weather encourages germination.

Here in Seattle, sow from early spring through early fall, depending on the crop. Allow at least 4 months from sowing till first killing frost, so plants will have time to grow big enough to endure winter weather.

Although it is not recommended that seeds be sown in hot weather, you can if you provide shading. There are many ways to provide shading, like planning a lettuce and tender herb bed under an apple tree, using an old umbrella, handle removed and staked into the ground, reemay supported with sticks like an old pup tent. Remove the shading material gradually as the seeds come up.

Perennials and Annuals for Fall Sowing

Your packets will recommend certain types of seed for late fall sowing. The purpose of this is not to have the seed germinate in autumn, but rather to give the seed a cold period to make it ready to grow with the first favorable weather of spring. Plant slightly deeper than you would in spring. Protect the sides of the bed with boards to prevent seeds washing away. Apply a protective mulch as soon as the ground freezes. Ideal sowing time is just before this happens.

Garden Care

After your seedlings are up and established and your transplants have had a week or two to root in, you'll receive your greatest reward from gardening the time of bloom and harvest that you've been looking forward to. Here's what you should do to make your garden flourish during this time.

Watering

An actively growing garden requires at least 1 inch of rain per week; if such is lacking, or you see your plants wilt during the warmer part of the day, you probably need to irrigate. Plants need about 1 inch of rain a week so in the summer months, you are the rain clouds. During the first 3 weeks after setting out, check soil moisture weekly. If the surface is dry beneath the mulch, dig down 6 inches with a trowel. If the soil is still dry at that depth, water your bed.

Water deeply but not too frequently. Soak the garden for up to 4 hours at a time, letting water soak deep, then let upper soil layers dry out before watering again. This promotes deep root growth, more lasting beauty and better harvest from your plants, and helps retard weed growth.

Several irrigation methods are effective. Ground watering, with trickle tubes or a carefully placed hose, soaks deep and avoids wetting foliage or flowers (which often encourages disease), but these devices are sometimes hard to set up or move. Impulse jet sprinklers lay down a lot of water fast and are easy to move around, but

can beat small or tender plants down. A fine spray sprinkler of the oscillating or whirling type is both gentle and easy to move, but slower.

The best way to water is by hand, this will give you an opportunity to inspect your plants for pests, weeds and new growth.

Feeding

Generally, yellowish (not brown or wilted) leaves and slow growth mean more nutrients are needed. A good organic all purpose fertilizer will help to amend any missing nutrients in your soil. Yellowing leaves is especially indicative of a magnesium deficiency and will benefit from a Sul/Pol/Mag fertilizer. Epsom salts have also been traditionally used for this application.

Applying side-dressing of fertilizer, keeping 3 to 4 inches away from plant



In addition to top dressing, adding an all purpose fertilizer containing mycorrhizae to the planting hole will give the roots a growing partner. Mycorrhizae is a fungus that naturally occurs in healthy soil and helps roots find water and nutrients and will help soil retain moisture.

YOUR SEED-STARTING PLAN				
The Spring Frost-Free Date in My Garden is _____				
<i>CROP</i>	<i>WHEN TO START INSIDE</i>	<i>WEEKS FROM SOWING</i>	<i>SAFE TO SET OUT TIME (RELATIVE TO FROST-FREE DATE)</i>	<i>SETTING OUT DATE</i>
Basil		6	1 week after	
Beets*		4-6	2 weeks before	
Broccoli		4-6	2 weeks before	
Cabbage		4-6	4 weeks before	
Cauliflower		4-6	2 weeks before	

Collards		4-6	4 weeks before	
Corn*		2-4	0 to 2 weeks after	
Cucumber		3-4	1 to 2 weeks after	
Eggplant		8-10	2 to 3 weeks after	
Kale		4-6	4 weeks before	
Kohlrabi*		4-6	4 weeks before	
Lettuce		4-5	3 to 4 weeks before	
Melons		3-4	2 weeks after	
Mustard*		4-6	4 weeks before	
Okra*		4-6	2 to 4 weeks after	
Onions		6-8	4 weeks before	
Parsley		9-10	2 to 3 weeks before	
Peas*		3-4	6 to 8 weeks before	
Peppers		6-14	2 weeks after	
Pumpkins		3-4	2 weeks after	
Spinach		4-6	3 to 6 weeks before	
Squash		3-4	2 weeks after	
Swiss chard		4-6	2 weeks before	
Tomatoes		6-8	1 to 2 weeks after	

* These crops are usually direct-seeded outdoors, but they can be started inside.